

2. THE PROCESS ACCORDING TO CLAIM ONE WHEREIN THE PRODUCT IS JUICES (SUCH AS,
BUT NOT LIMITED TO APPLE, ORANGE ,LIME, GRAPEFRUIT, GRAPE , CRANBERRY,
TANGERINE
, CHERRY, APRICOT, STRAWBERRY, NECTARINE, PEACH NECTAR, APRICOT NECTAR,
PINEAPPLE,
RASPBERRY, LEMON, PEAR, ETC; AND ANY MIXTURE THEREOF).

DESCRIPTION

1. FIELD OF INVENTION

A. ULTRA VIOLET ACTIVATED OXYGEN HAS BEEN USED SINCE 1982 FOR BACTERIA

REDUCTION IN WELL WATER IN THIRD WORLD COUNTRIES TO

PROVIDE CLINICALLY PURE WATER

B. ULTRA VIOLET ACTIVATED OXYGEN HAS BEEN USED SINCE 1982 TO REDUCE

BACTERIA FROM "GRAY" WATER TO PRODUCE POTABLE WATER

C. ALSO, IN SOME INSTANCES, A HUMIDIFIER IS USED TO INCREASE THE AMOUNT OF

HYDROXYLS AND HYDROPEROXY GENERATED

D. ALSO, IN SOME INSTANCES A SPECIFIC CATALYST IS INTRODUCED INTO THE
SYSTEM TO INCREASE THE AMOUNT OF HYDROXYLS AND HYDROPEROXY.

2. DESCRIPTION OF RELATED ART

A. ULTRA VIOLET ACTIVATED OXYGEN HAS BEEN USED SINCE 1985 TO REDUCE

BACTERIA FROM THE EXTERIOR SURFACE AREA OF VEGETABLES (ie. TOMATO,
PEPPER, ETC.)

B. ULTRA VIOLET ACTIVATED OXYGEN HAS BEEN USED SINCE 1988 TO REMOVE

BACTERIA FROM JUICES (ORANGE, CRANBERRY, APPLE CIDER). THIS WAS DONE
ON SMALL SCALE LABORATORY TESTING

C. STARTING IN 1990, TESTING USING ULTRA VIOLET ACTIVATED OXYGEN WAS

CONCENTRATED ON APPLE CIDER AND ORANGE JUICE EXCLUSIVELY IN OUR LAB.

D. ULTRA VIOLET ACTIVATED OXYGEN IS DEFINED AS:

ASSUMING AMBIENT AIR HAS 21% OXYGEN CONTENT, FOLLOWING IS THE TYPES OF
GASSES CREATED BY THE ULTRA VIOLET LAMP (185 NANOMETER) FROM THE 21%

OXYGEN:

HYDROXY RADICAL	2 %
ATOMIC OXYGEN	0.5%
HYDROGEN PEROXIDE	6%

LAWRENCE GENE COSTELLO
714-633-1598

HYDROPEROXY RADICAL	2 %
HIGHER PEROXIDES	7%
OZONE	2%
UNKNOWN	1.5%

CROSS REFERENCE TO RELATED APPLICATIONS---- NOTAPPLICABLE

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH--NOT APPLICABLE

REFERENCE TO MICROFICHE INDEX----NOT APPLICABLE

S U M M A R Y

1. BASED ON THE TECHNICAL INFORMATION OBTAINED FROM ACTIVITIES STATED IN

"FIELD OF INVENTION" AND "DESCRIPTION OF RELATED ART" AND ON TESTING SINCE

1985 A SPECIFIC PROTOCOL HAS BEEN FORMULATED TO EFFICIENTLY AND AT A LOW

COST REDUCE THE BACTERIA FROM JUICE USING ULTRA VIOLET GENERATED

ACTIVATED OXYGEN

2. AT PRESENT, PASTEURIZATION (HIGH HEAT) IS THE ONLY F.D.A APPROVED METHOD

TO OBTAIN A 5 LOG REDUCTION. UNFORTUNATELY, THE HIGH HEAT DESTROYS ALL THE

ENZYMES (AT ANY TEMPERATURE OVER 125 DEGREES F.). ALSO, PASTEURIZATION IS AT

LEAST FIVE (5) TIMES MORE EXPENSIVE THAN ULTRA VIOLET ACTIVATED OXYGEN
SYSTEMS.

3. THIS ULTRA VIOLET ACTIVATED OXYGEN PROCESS WILL REMEDY THE PROBLEM OF

ENZYME LOSS (THERE IS LITTLE OR NO EFFECT ON ENZYMES USING THE ULTRA VIOLET

ACTIVATED OXYGEN SYSTEM)

4. IT HAS BEEN OBSERVED THAT SHELF LIFE IS EXTENDED DUE TO REDUCTION OF BACTERIA.

5. THE LOWER INITIAL COST, AND THE LOW MAINENANCE COST WILL ALLOW EXISTING

"MOM AND POP" OPERATIONS TO STAY IN BUSINESS.